

# EPAL LABORATORY COMPLEX (LISBON WATER SUPPLY COMPANY) 2005-2010, Lisbon – Portugal

**Client** Portuguese Lisbon Water Supply Company

**Engineering** Betar (structures), Joule (electric and communication installations), Galvão Teles (HAVAC), GR – Grade Ribeiro (water and sewage installations), Multitec (security and safety), A. Teixeira (gas), Barrento da Costa (acoustics)

**Contractor** Graviner

**Photography** João Morgado

Situated at the main complex of the Lisbon Water Supply Company in Olivais, the new laboratory occupies a vacant plot constrained by the different altimetric platforms and the preexistent elements. Two reservoirs, facing *Infante D. Henrique* Avenue and the Pumping Station, are located on the highest platform. The terrain then descends and, following the west direction, are drawn the two lower and larger platforms, separated by the hill of the Pumping Station. The entrance of the complex is through *Berlim* Avenue at the lower level, on the edge of the transition to the intermediate one.

The new laboratory occupies the southeastern of the lower platform whereas the topography, the program, and the plot's form and limits define its two-story volume. The design follows the logic concerning the laboratory activity. A central core, containing all the elements of circulation, infrastructures and enclosed spaces, frees the space around the perimeter of the building allowing to locate the main spaces around the four façades enjoying natural light and view. In turn, the spaces assigned to support the laboratory activities, including the parking for vehicles transporting daily samples for analysis, are located on the basement floor. The trajectory of the analysis of the water samples determines the succession of spaces and the program's articulation. The samples are delivered on arrival and then run through the other sectors, where they undertake the necessary qualitative assessments. Besides this process, the laboratory also tests the samples in particular materials, with a primary emphasis on human consumption. Each activity sets programmatically the specific requirements for the occupation of space. However, common features may be found regarding the proximity and distance between different spaces, the thermal quality and brightness, the level of disinfection in the immediate and surrounding area, and the control and accessibility of people and materials.

The dense and concentrated nature of the building results from the optimization of the program, which obliged to a spatial distribution based on functional interdependence. In the interior are defined four peripheral bodies whose dimensions result from the modulation stipulated according to the layout of the standard laboratory. The horizontal circulation, generous in width to allow the movement of trolleys and people in both directions, extends to the façade separating these bodies from the interiorized volume, where are located the spaces that do not require direct natural light.

The building intermittently contacts with the exterior, in its double skin, resulting from the need to control the brightness of the façade planes, ensured through occlusion systems and careful specification of glass, which will have different options depending on the sun exposure allowed.

